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ABSTRACT

A study was conducted to develop and test the empirical validity of a middle-range theory designed to explain and predict the relationship between speech communication egocentrism and reading achievement. The theory predicts an inverse relationship between elementary school children's levels of speech communication egocentrism and reading achievement. The empirical validity of the theory was tested using the scores of 180 first through sixth grade elementary students on S. Greenspan's Matrix Test of Referential Communication and the reading subtest of the Metropolitan Achievement Test. The results support the theory at all grade levels except first. (Author/RL)

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ORAL LANGUAGE AND READING ACHIEVEMENT

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Throughout the past century and a half numerous scholars have considered the role speech communication (spoken symbolic communication) performs in the acquisition and development of reading. In the late nineteenth century, the Swiss educator Johan Heinrich Pestalozzi restated the proposition that the spoken language was the initial means by which children gain knowledge and therefore children should acquire and be competent in speaking before learning to read (Gutek, 1968, 10). Since the turn of this century there have been numerous qualitative and quantitative studies whose primary focus was determining the relationship between speech communication and reading. Although many of these studies, including Loban (1963), DeHirsch and Jansky (1967) and Strickland (1969),[1] have confirmed that speech communication plays a central role in reading acquisition/development, numerous issues still surround such research. One of the issues which has not been addressed at length is why speech communication is related to reading achievement. What is missing from research in this area are formal theories which attempt to explain why the two language skills are related.

The general objective of this report is to present the results of a study concerned with the development and empirical verification of a middle range theory designed to explain and predict the relationship between elementary school childrens' levels of speech communication egocentrism and reading achievement. This report is divided into two principal sections. The first concerns the explication of the theory and the second, the empirical verification of the theory.

THEORETICAL STATEMENT AND REVIEW OF THE LITERATURE

The method of theory construction used was eclectically derived from the metatheoretical works of Dubin (1969), Francis (1961), Kaplan (1964), Reynolds (1971), and Zetterberg (1963). Essentially, the method involved the execution of six procedures: (1) identifying the limitations or boundaries of the theory; (2) specifying and defining the theoretical units of the theory; (3) developing the laws of interaction for the theoretical units as well as providing a rationale for such laws; (4) extending the laws of interaction into propositions; and (5) examining the propositions for material (empirical) validity; specifying the propositions, if any, which are not materially valid.

Boundaries

To avoid extending the findings of the study beyond the domain of the proposed theory the following three boundaries have been assigned: (1) Elementary school children; (2) who are participating in a reading program; and (3) whose primary mode of communication is speech communication.

(1) Elementary school children: The theory applies only to those children between the first and sixth grades who are enrolled in an elementary school. Although the phenomena may very well exist before the first grade or beyond the sixth grade, the theory's applicability for education should correspond to the normal time period for the acquisition of reading.

(2) Elementary school children participating in a reading program: The phenomena applies only to those children who have participated or are currently participating in a reading program. The assignment of this boundary is necessary in order to allow for variability in reading.

achievement. If, for example, a group of elementary school children had never received any reading instruction, then it might be assumed that their reading scores would all be at the 0 level of achievement. It is not necessary for the children to be enrolled in the same reading program.

(3) Elementary school children whose primary mode of communication is speech communication: This boundary condition excludes children whose primary mode of communication is American Sign Language, Seeing Essential English, or any other visual or tactile technique. Also excluded are children who are aphasic or have not acquired speech communication. The rationale for this boundary is based on the necessity to measure "speech communication egocentrism." In order to do so, the child's primary mode must be speech communication.

Theoretical Units: The Attributes of Speech Communication and Reading

Speech Communication. Speech communication is conceptualized herein as, "Uniquely human. The process or the product of the process of the fusion of genetically determined speech with culturally determined language (Dance and Larson, 1972, 11; Dance and Larson, 1976, 194)." Three major concepts of this definition for speech communication are speech, language, and communication. They are being defined as:

> Speech (spoken). A genetically determined, individual psycho-physiological activity consisting of the production of phonated, articulated sound through the interaction and coordination of cortical, laryngeal, and oral structures (Dance and Larson, 1972, 11; Dance and Larson, 1976, 194).
>
> Language. Systematized signs and/or symbols (Dance and Larson, 1972, 11; Dance and Larson, 1976, 194).

> Communication. The process (or the product of the process) of acting on information. Limited to organisms (Dance and Larson, 1972, 8; Dance and Larson, 1976, 194).

Reading. After a review of reading theory it became apparent that there is no generally agreed upon definition of reading. The definitions range from a simple decoding process to a more complex process involving numerous criteria. To alleviate this difficulty, a definition of reading was constructed using a method in which published definitions were thematically analyzed. The published definitions included those of Crosby and Liston (1968, 38); Neisser (1967, 4); Smith (1971, 198); DeHirsch (1973, 517); Mackworth (1973, 509); Chall (1973, 118); Holmes (1970, 187); and Montessori (1964, 267).

Based on the analysis of these definitions, it is suggested that reading consists of two parts or subskills.

1. The process of decoding graphic, visual or tactile stimuli into a verbal code.
2. The product of comprehension of meaning via the verbal code.

Levin (1966, 138-147), although not using the same terminology but the same conceptual ideas, recommends such a division of subskills. Levin also states that no distinction should be made concerning which part is more important as both are essential if reading is to occur.

By means of analysis and synthesis of the previous material the following definition is proposed for the attribute reading.

> The process or the product of the process of decoding graphic, visual, or tactile stimuli into a verbal code which permits the comprehension of meaning.

Theoretical Units:

Variables of Speech Communication and Reading

Speech Communication Egocentrism

Piaget was among the earliest researchers to identify and label egocentric speech communication. He identified the phenomena as being present when the child,

> ...does not bother to know to whom he is speaking nor whether he is being listened to. He talks either for himself or for the pleasure of associating anyone who happens to be there with the activity of the moment. This talk is egocentric, partly because the child speaks only about himself, but chiefly because he does not attempt to place himself at the point of view of his hearer (1955, 32).

Flavell, in extending Piaget's conceptualization of egocentric speech communication, states:

> It is speech which, whether uttered in solitude or in the presence of others, is judged to lack a primary communicative aim, there is no real attempt to take the role of the listener and hence adapt the message to his information needs or input capacity; indeed, there is no real attempt even to make sure he is listening (1963, 271).

Flavell's (1968, 8, 9) schematic description of egocentric and non-egocentric speech communication further helps to delineate the concept. In the following two diagrams the letter S refers to the speaker, X refers to information or data, and L stands for listener.

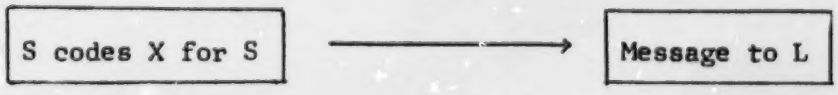

Figure 1

During the process of producing an egocentric message the speaker generally engages in two major steps. First, he/she perceives the information and covertly codes it so that it is meaningful and comprehensible to him/herself. Secondly, the speaker sends the information or message to the listener. This message is essentially a non-modified or unrecoded

duplication of the initial message constructed by the sender in step one.

The opposite of egocentric speech communication (nonegocentric speech communication) is characterized by Flavell through the following diagram.

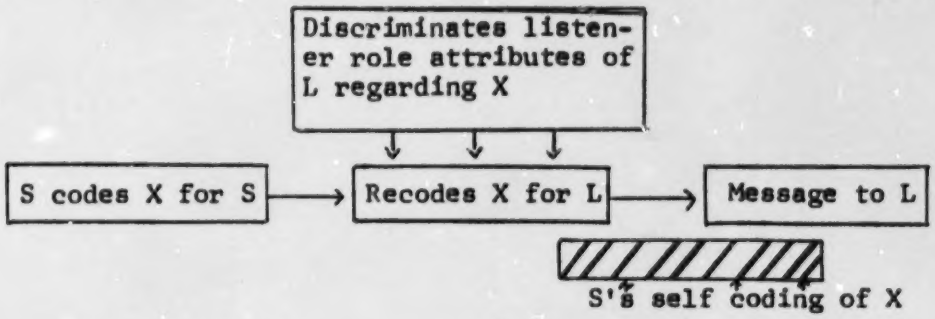

Figure 2

The production of nonegocentric speech communication is categorized in three steps. The first is identical to the initial step in the construction of egocentric messages, S perceives the information or data and covertly codes it in order that it might be understood by himself. It is with the onset of the second stage that the difference between egocentric and nonegocentric speech communication becomes realized. The second step is characterized by the sender's attempts, both prior to and during the conversation with the listener, to view the message from the listener's perspective or, as Flavell says, "...to discriminate those role attributes of L which appear to be pertinent to L's ability to decode communicative input regarding X (1968, 9)."

The third and final step involves (1) the recoding of the message on the basis of the information acquired in step two concerning the listener's perspective of the information; and (2) the actual sending of the recoded

message. During the first half or the recoding portion of this final step the speaker is confronted with suppressing.

> ...the insistent and recurring tendency to allow his message to first or 'regress' toward the initial coding of step 1 (the egocentric error), a tendency which exists by virtue of the fact that this initial coding is both continuously and intrusively present in S's consciousness and, by definition, is communicatively adequate for him, that is, communicatively satisfying from his point of view (see figure 2) (Flavell, 1968, 9).

Reading Achievement

The variable of reading achievement will refer to the level at which a subject can silently read with comprehension (Roswell, 1964, 36). Reading, as previously noted, refers to the process or the product of the process of translating graphic, visual, or tactile stimuli into a verbal code which permits the comprehension of meaning. The use of the term achievement in this study coincides with Anastasi's (1976) and refers to the product of an evaluation of the subject's reading ability. It is through this evaluation that the reading achievement level is determined.

Theoretical Unit: An Additional Unit Which Applies to the Present Theory

The inclusion of the following theoretical unit is being done to further the logical development of the laws of interaction. It will not serve as a measurable variable but rather as an intermediary unit whose purpose is to strengthen the rationale behind the relationship between speech communication egocentrism and reading achievement. The definition of the unit follows:

Decentration: To understand the essence of decentration it would be helpful to introduce the concept egocentrism. Piaget has conceptualized egocentrism as:

> ...a lack of differentiation between one's own point of view and other possible ones...(1962, 4).
>
> ...the lack of decentering, of the ability to shift mental perspective, in social relationships as well as in others (1962, 8).
>
> ...difficulty in understanding differences in points of view between the speakers and therefore in decentration (1969, 118).

Piaget in these quotes and more fully in his writings (1955; 1962; 1969; 1973), sets forth the assertion that decentration and egocentrism exists in an inverse relationship with each other. That is, the lack of decentration implies the presence of egocentrism and vice versa. Therefore, decentration may be conceptualized as the ability to differentiate one's own point of view from others or to shift mental perspectives in social and physical (nonsocial) situations.

Since the introduction of these concepts Piaget and others have classified and labeled various forms or types of decentration. This expansion of the concept has created the identification of numerous forms of decentration including: physical, intellectual, linguistic, and social (Elkind, 1972); perceptual (Bowd, 1974; Elkind, et. al., 1965); and spatial (Shantz, 1971; Rubin, 1974). Although these different types provide a unique perspective to the phenomena of decentration they all, in their very essence, share the basic core characteristic. For the purposes of this study no attempt will be made to differentiate or specify a particular type. This researcher recognizes that there are major developmental differences among the types but such differences will not adversely affect the significance of the application of the theoretical unit to the development of the laws of interaction.

Laws of Interaction

> An indispensable step in developing a scientific model is to specify the interactions among the units employed in it. Beyond description of units, science is centrally concerned with relationships among things (Dubin, 1969, 87).

Within the above, Dubin clarifies the central role assumed by the laws of interaction. They may be viewed as general statements which indicate the relationships or associations between two or more theoretical units.

The following laws of interaction are presented in a deductive fashion by presenting first a general covering law followed by a series of three additional laws each specifying particular relationships between the theoretical units. The presentation of the first two laws is designed to create a logical paradigm for the construction of the third and final law of interaction. The covering law is:

> There is a relationship among elementary school children's levels of speech communication egocentrism, decentration and reading achievement.

> Law 1: There is an inverse relationship between elementary school children's levels of speech communication egocentrism and decentration.

This first law of interaction is concerned with the association between the theoretical units speech communication egocentrism and decentration. Presumably, the less egocentric speech communication an elementary child displays the greater the child's decentration ability. Therefore, child X whose speech communication is less egocentric and thus more adapted to the role attributes and the language code of the listener than child Y, will in turn exhibit higher decentration than child Y.

The relationship between these two theoretical units has previously been discussed. During the explication of the theoretical unit, decentration, it was noted that the concepts decentration and egocentrism were inversely related. Logically, then, as decentration increases egocentrism should

decrease, resulting in an inverse relationship.

Furthermore, by examining the conceptual definitions of speech communication egocentrism and decentration it becomes apparent that when egocentric speech communication is exhibited there is a lack of decentration. Piaget, in commenting on these two variables, states that an inverse relationship between decentration and speech communication egocentrism is tenable.

> There is no reason to believe that cognitive egocentrism, marked by unconscious preferential focusing, or by a lack of differentiation of viewpoints, has no application to the field of interpersonal relations, in particular those expressed in language. To take an example from adult life, every beginning instructor discovers sooner or later that his first lectures were incomprehensible because he was talking to himself, so to say, mindful only of his own point of view. He realizes only gradually and with great difficulty that it is not easy to place oneself in the shoes of students who do not yet know what he knows about the subject of the course (1962, 5).

Piaget's statement not only recognizes the inverse relationship but also indicates the presence of decentration/egocentrism in the process of speech communication.

Additional support for the first law can be established by examining the results of several empirical studies. Cowan (1966) investigated the association between spatial decentration and egocentric speech communication. The results of his study indicated that children who were successful in multiple perspective taking (spatial decentration), as measured by Piaget's "Three Mountain Test," exhibited less egocentric speech communication than those children who were unsuccessful in multiple perspective taking. Rubin's research (1973; 1974) confirmed Cowan's findings but also established that such an association is influenced by chronological age. Rubin's findings (1973; 1974) indicated that a significant inverse relationship existed between

spatial decentration and egocentric speech communication in grades 4, 6, and in college age groups but was not present in grades kindergarten and 2 or in two groups of subjects whose mean ages were 7.63 (s.d. = .35 years) and 76.33 (s.d. = 7.87 years).

Law 2: There is a positive linear relationship between elementary school children's levels of decentration and reading achievement.

Presumably, as a child's level of decentration increases so does the child's capacity to learn to read. Therefore, child X whose decentration is higher than child Y's will also exhibit higher reading achievement.

The research of Almy, Chittendon and Miller (1965) was one of the first attempts to identify the relationship between decentration and reading acquisition/achievement. Using kindergarten pupils as subjects they discovered a strong relationship between the subject's conversation abilities (decentration) and reading readiness.

Crutchfield (1970) extended the Almy, Chittendon and Miller (1965) findings into an experimental paradigm designed to test the effects of decentration training on the reading readiness of kindergarten students. The results indicated no significant differences between the reading readiness levels of the experimental (decentration training) and control (no decentration training) groups. However, the findings did confirm the results of the Almy, et. al. (1965) study by indicating highly significant positive correlations between decentration abilities and reading readiness.

Elkind, Horn and Schneider (1965) in a descriptive study investigated the relationship between perceptual decentration and reading achievement. Perceptual decentration develops in a child through the acquisition of perceptual regulations (Elkind, Larson, and Van Doorninck, 1965).

Perceptual regulations, according to the authors, can be operationally defined as being present when the mental ability to rearrange the letters ulbe into the word blue is evidenced. The Elkind, Horn, and Schneider (1965) study used 180 elementary school children who were administered a battery of tests for perceptual decentration and reading achievement. Factor analysis of the results of these tests indicated that decentration was a central factor under-scoring success in reading achievement. As mentioned earlier, the process of reading involves the translation of graphic, visual, or tactile stimuli into a verbal code. This process encompasses the use of decentration on several levels and provides additional theoretical support for the second law. The first level involves the role of decentration in the development of conceptual thought which is itself necessary for reading. As the child matures and slowly acquires the ability to shift from a singular perspective to several perspectives (decentration), there is a corresponding evolution from what Mortimer Adler (1967, 136) calls perceptual to conceptual thought. Perceptual thought which is limited to the present, has very little, if any, usefulness in the reading process because of its limiting and stifling quality of producing a static perspective. In order to read and comprehend the written word, the child must be capable of transcending the here and now and conceptually manipulating symbols placed in past, future, and imaginary worlds.

The second level on which decentration relates to reading is associated with the reader's apparent need to recognize the verbal or symbolic aspect of the words being read. This entails applying several conceptual perspectives to individual words. This factor allows the reader to recognize a word meaning in relation to the context of a sentence and/or story. Thus, the

term peer can acquire a different meaning in relationship to the following sentences. Jim is a peer of Tom. Jim will peer at Tom.

The third level involves the necessary recognition by the reader of several perspectives when reading a story. For example, the reader may view a story from the point of view of the writer, the character(s), and, of course, himself. The shifting from a singular perspective to a multi-faceted viewpoint encompasses decentration. This ability is essential for the reading process for it allows the reader to deal with more than one subject or event when reading. The sentence, "The boys watched Dick, as Dick watched Jane pet the cat," can be read from several perspectives, such as the boys, Dick, Jane, the cat, the author of the sentence, and the reader of the statement.

> Law 3: There is an inverse relationship between elementary school children's levels of speech communication egocentrism and reading achievement.

This law of interaction assumes that the less speech communication egocentrism an elementary child displays the greater the child's reading achievement. Therefore, child X whose speech communication is less egocentric than child Y will also exhibit higher reading achievement than child Y.

Because of the neoteric nature of the third law of interaction no empirical evidence was available for its justification. It therefore was dependent upon the logical paragigm of the first two laws of interaction for its validity.

Propositions

The following propositions indicate the predicted values for the laws of interaction. The rationale for these propositions has been provided in the discussion of the laws of interaction. The propositions are "chained"

according to a method proposed by Zetterberg (1963). This chaining allows for the sequential development of the third proposition. The arrangement of these propositions and therefore the evolution of the theory assumes a hierarchical nature. Kaplan (1964, 298) characterizes the development of a hierarchical theory as a deductive process in which a law (proposition) is explained as a "logical consequence" of a set of primary premises. The three propositions derived from the laws of interaction are:

1. The lower elementary school children's levels of speech communication egocentrism the higher their levels of decentration.
2. The higher elementary school children's levels of decentration the higher their levels of reading achievement.
3. The lower elementary school children's levels of speech communication egocentrism the higher their levels of reading achievement.

The issue of the empirical validity of the present theory has, in part, been previously resolved. By means of a re-application of the theoretical and empirical rationales offered for the first and second laws of interaction it may be concluded that they are empirically valid. That is, the evidence for these two laws allows the validation of:

As speech communication egocentrism decreases, decentration increases.

And,

As decentration increases, reading achievement increases.

Although both the third law of interaction and the proposition could claim a formal or logical validity there was no empirical evidence to support or verify its material (empirical validity). This was one of the purposes of the present study, to determine if there is empirical evidence to confirm the third proposition.

Empirical Verification

To investigate the empirical validity of the proposed theory the third proposition was restated in the form of a hypothesis. The acceptance level was set at $<.05$.

> There is a negative correlation between elementary school children's levels of speech communication egocentrism and reading achievement.

Subjects

The subject pool used in the present study were from a Denver, Colorado metropolitan elementary school. Fifteen males and fifteen females were randomly selected from each grade level (first through sixth). This resulted in a total sample population of 180 students.

Measurement

The selection of a speech communication egocentrism measure was accomplished via a review of published speech communication egocentrism tests and an application of the criteria of validity and reliability. The tests reviewed included: Cohen and Klein (1968), Greenspan (1975), Kohlberg, Yaeger, and Hjertholm, (1968), Krauss and Weinheimer (1964), Glucksberg, Krauss, and Weisberg (1966), Piaget (1955), Rubin (1973), Glucksberg and Krauss (1967), and Rubin, Hultsch and Peters (1971). Although several of these tests reported adequate reliability only Greenspan's (1975) Matrix Test of Referential Communication reported validity beyond the face or content level, therefore, it was selected. Test-retest and interjudge reliability have been established for the measure at .86 and .98 respectively (Greenspan, 1975). Construct validity was determined via the known group method (Kerlinger, 1964) with highly significant age ($p.<.001$) and group (normal-emotionally disturbed) ($p.<.001$) effects being established (Greenspan, 1975). Greenspan's instrument

is designed to be administered individually to subjects between middle childhood (age 5) to early adolescence (age 13). The test consists of a board divided into nine squares on which sixteen objects differing in geometric shape, color and size are placed. The subject is asked to give directions to a hypothetical subject (who would be unable to see the board) regarding how to correctly place the sixteen objects on another board so as to recreate the same pattern as found on the original.

Scoring is based on a scale of 0 (nonegocentric) to 45 (high egocentric). The maximum of 45 points is derived from the number of possible variations among the objects and squares. There are five information parts (size, shape, color, column, and row) for each nine cells.

The choice of a reading achievement test involved a review of the reading achievement measures presented in Buros (1965) and an application of the following three criteria: (1) capacity of the test to measure reading achievement in grades one through six; (2) validity; and (3) reliability of measure. An application of the three criteria resulted in the elimination of thirty-four of the thirty-six reading achievement tests reported in Buros (1965). The two remaining reading achievement tests were: The California Reading Test and the Metropolitan Achievement Test: Reading Subtest. The decision to use the Metropolitan Test was based on the school administration's request not to administer the California Reading Test because it was currently used in the school's reading evaluation program. Split half reliability for the Metropolitan has been established at the .90 level and higher (Farr, 1969, 41; Durost, 1971). Tests for concurrent validity have shown the Metropolitan to be significantly correlated beyond the .001 level with other established reading achievement measures (Harris, 1974).

Data Gathering

The subject's speech communication egocentrism scores were obtained via individual testing sessions. To expediate the testing, individuals trained in the administration of the test assisted the researcher. The location of the testing was a noise free room at the subjects' elementary school. To establish inter-recorder reliability three procedures were employed: (1) a minimum of six interview sessions for each of the four examiners were audio-recorded. A total of thirty audio-recordings were made; (2) a fifth examiner independently reviewed the audio tapes, prepared written transcripts of the subjects' responses and scored the tests; and (3) a Pearson Product Moment correlation was run between the original test scores and the audio-transcript scores. The results indicated a correlation of .93.

Reading achievement scores were obtained by administering, by grade level, the standardized reading test. The location of the testing was a noise free room at the subjects' elementary school.

Statistical Procedure and Results

Pearson Product Moment correlations were computed by grade level to determine the associations between speech communication egocentrism and reading achievement. Results of this analysis may be found in Table One.

TABLE ONE

CORRELATION COEFFICIENTS: SPEECH COMMUNICATION EGOCENTRISM AND READING ACHIEVEMENT BY GRADE LEVEL

GRADE LEVEL	CORRELATION COEFFICIENT	SIGNIFICANCE LEVEL
1	-.09	$p. < .316$
2	-.56	$p. < .001$
3	-.60	$p. < .001$
4	-.45	$p. < .006$
5	-.45	$p. < .006$
6	-.67	$p. < .001$

NOTE: Values are Pearson Product Moment correlation coefficients.
n = 30

The correlation coefficients for speech communication egocentrism and reading achievement by grade level were: (1) grade one, $r = -.09$ ($p. < .316$); (2) grade two, $r = -.56$ ($p. < .001$); (3) grade three, $r = -.60$ ($p. < .001$); (4) grade four, $r = -.45$ ($p. < .006$); (5) grade five, $r = -.45$ ($p. < .006$); and (6) grade six, $r = -.67$ ($p. < .001$).

Owing to the significant moderate correlations the hypothesis was accepted for elementary school children in grades two, three, four, five and six.

The correlation coefficient for the first grade, although negative, was low and statistically nonsignificant. Therefore, the hypothesis was not supported for elementary school children in grade one.

An examination of the first grade reading achievement scores revealed two possible explanations which may account for the lack of a significant negative correlation in the first grade. The first explanation concerns the necessity that subjects' scores be heterogeneous for the production of a correlation (Anastasi, 1976, 125). The standard deviation for reading among the thirty first graders was s.d. = 13.72. This standard deviation, however, was inflated by two extremely high reading achievement scores. These two scores were 76 and 73, with a total possible point value of the first grade reading achievement test being 77. The mean reading achievement score for the first grade subjects was 30.60. If the standard deviation is recalculated without the two scores it is s.d. = 7.00. Given the relative homogeneity of the remaining twenty-eight reading achievement scores it is possible that the two deviant scores could have influenced the degree of association between speech communication egocentrism and reading achievement for the first grade subjects.

The homogeneity of most of the reading achievement scores could possibly be attributed to the relative inexperience of the first grade subjects with the process of reading. Although it is possible that some of the first graders may have been exposed to reading instruction prior to entering the first grade, it is also reasonable to assume that the vast majority of them had not.

The second possible explanation was discovered upon examination of the correlations between speech communication egocentrism and the two reading achievement subtests, word knowledge (reading vocabulary) and reading (sentence and paragraph comprehension). The correlation coefficient for speech communication egocentrism and word knowledge in grade one was $\underline{r} = -.25$ ($p. < .089$). The correlation coefficient for speech communication egocentrism and reading in grade one was $\underline{r} = .06$ ($p. < .382$). A comparison of these two findings revealed that the correlation between speech communication egocentrism and reading was near zero and therefore negligible, whereas the correlation between speech communication egocentrism and word knowledge, although low, still indicated the presence of a small relationship between the two variables. Furthermore, an examination of Table Two shows the correlations for speech communication egocentrism and the two subtests in grades two through six were near equal.

TABLE TWO

CORRELATION COEFFICIENTS: SPEECH COMMUNICATION EGOCENTRISM AND WORD KNOWLEDGE

GRADE LEVEL	CORRELATION COEFFICIENT	SIGNIFICANCE LEVEL
1	-.25	p. < .089
2	-.47	p. < .004
3	-.63	p. < .001
4	-.53	p. < .001
5	-.34	p. < .031
6	-.59	p. < .001

NOTE: Values are Pearson Product Moment correlation coefficients.
n = 30

TABLE TWO CONTINUED

CORRELATION COEFFICIENTS: SPEECH COMMUNICATION EGOCENTRISM AND READING

GRADE LEVEL	CORRELATION COEFFICIENT	SIGNIFICANCE LEVEL
1	.05	$p. < .382$
2	-.52	$p. < .002$
3	-.50	$p. < .002$
4	-.72	$p. < .001$
5	-.51	$p. < .002$
6	-.69	$p. < .001$

NOTE: Values are Pearson Product Moment correlation coefficients.
n = 30

These findings suggest that although the subtests contributed nearly equally to the correlation between speech communication egocentrism and reading achievement in grades two through six, they did not in grade one. Furthermore, these findings suggest that there was a low negative correlation between speech communication egocentrism and word knowledge in the first grade. However, when word knowledge and reading were combined to form reading achievement the correlation coefficient was reduced.

The difference between the two subtest correlations in the first grade could be attributed to the relative experience of the subjects with word knowledge or single word reading and the relative inexperience of the subjects with reading or sentence and paragraph comprehension.

The empirical test did, however, find moderate to strong support (r's ranging from -.45 to -.67) for the hypothesis in grades two through six. These findings suggest that speech communication egocentrism can be viewed as a contributing variable to reading achievement. The presence of moderate correlations rather than high correlations also suggests that speech communication egocentrism cannot be viewed as a single or lone predictor of reading

achievement. This finding is not surprising given the vast complexity and number of factors that influence reading (i.e. long and short term memory, visual processing time, personality of reader, etc.).

In summary, these findings permit the proposed theory to claim empirical validity with the reservation that such validity is limited to elementary school children who are enrolled in grades two through six.

Limitations of the Theory

The results of the construction of the present theory as well as the establishment of the theory's material validity are bounded by two principle limitations. The first of these limitations concerns the generalizability of the empirical results of this study beyond the sample population. Although there is no current evidence to indicate the presence of socio-economic or ethnic influences on the association between speech communication egocentrism and reading achievement such influences could very well exist. Until such time that the association is tested with diverse socio-economic and ethnic populations the reader should remain cognizant that the population used to empirically test the present theory was composed predominantly of white, middle-class subjects.

The second limitation concerns the realization that, although the present theory can be said to be both logically and empirically valid, the most significant and conservative test lies in its future practical application in the classroom. The necessity and importance of this test cannot be overlooked.

Kaplan (1969), in speaking to the issue of the practicality of theory stated:

> Theory is of practice, and must stand or fall with its practicality provided only that the mode and contexts of its application are suitably specified (296).

As of yet, the present theory remains untested in practice and, therefore, in a pragmatic sense is limited. This does not mean to imply that such a practical test is untenable nor does it mean that the present study is of little importance. The present study provides, in part, a theoretical rationale underlying the possible future application of speech communication in elementary education. In essence, it provides knowledge, the knowledge necessary prior to application. As Edith Green said, "knowledge without action is futile, but action without knowledge is fatal (1975)."

Endnote

1. For a more detailed account of the previous oral language/reading achievement research see Johnson (1977).

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